REMARKS/ARGUMENTS

The disclosure has been amended to correspond to the changes made in the parent application. The status of the precursor application has been updated.

Attached hereto is a marked-up version of the changes made to the specification by the current amendment. The attached page is captioned "**Version with markings to show changes made**."

Respectfully submitted,

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Appl. No.

VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Specification:

Replace the paragraph beginning at page 1, line 11, with the following rewritten paragraph:

"This application is a continuation of copending United States Patent Application No. 08/649,518 filed May 17, 1996 which itself is a continuation-in-part of copending United States Patent Application No. 08/483,577, filed June 7, 1995 (now US Patent No. 6,015,688), which itself is a continuation-in-part of copending United States Patent Application No. 08/337,483 filed November 8, 1994 (now US Patent No. 5,922,562), which itself is a continuation-in-part of copending United States Patent Application No. 08/175,116, filed December 29, 1993 (now abandoned), which itself is a continuation-in-part of copending United States Patent Application No. 08/148,968 filed November 8, 1993 (now abandoned)."

Replace the paragraph beginning at page 12, line 21, with the following rewritten paragraph:

"Figures 3A to 3Q show[s] the nucleotide sequences of the transferrin receptor genes (SEQ ID NO: 1) and their deduced amino acid sequences (SEQ ID NO: 5 - Tbp1 and SEQ ID NO: 6 - Tbp2) from *H. influenzae* type b, strain DL63. The underlined amino acid sequences correspond to peptides of Tbp1 identified by amino acid sequencing. The putative signal sequences are indicated by double overlining and correspond to residues 1 to 17 for Tbp2 and 1 to 23 for Tbp1."

Replace the paragraph beginning at page 12, line 30, with the following rewritten paragraph:

"Figures 4A to 4Q show[s] the nucleotide sequences of the transferrin receptor genes (SEQ ID NO: 2) and their deduced amino acid sequences (SEQ ID

NO: 7 - Tbp1 and SEQ ID NO: 8 - Tbp2) from *H. influenzae* type *b* strain Eagan. Putative -35, -10 and ribosomal binding site sequences are overlined."

Replace the paragraph beginning at page 12, line 36, with the following rewritten paragraph:

"Figures 5A to 5Q show[s] the nucleotide sequences of the transferrin receptor genes (SEQ ID NO: 3) and their deduced amino acid sequences (SEQ ID NO: 9 - Tbp1 and SEQ ID NO: 10 - Tbp2) from *H. influenzae* type b strain MinnA. Putative -35, -10 and ribosomal binding site sequences are overlined."

Replace the paragraph beginning at page 13, line 4, with the following rewritten paragraph:

Figures 6A to 6Q show[s] the nucleotide sequences of the transferrin receptor genes (SEQ ID NO: 4) and their deduced amino acid sequences (SEQ ID NO. 11 - Tbp1 and SEQ ID NO. 12 - Tbp2) from the non-typable *H. influenzae* strain PAK 12085. Putative -35, -10 and ribosomal binding site sequences are overlined."

Replace the paragraph beginning at page 13, line 10, with the following rewritten paragraph:

"Figures 7A to 7N show[s] the nucleotide sequences of the transferrin receptor genes (SEQ ID NO: 105) and their deduced amino acid sequences (SEQ ID NO. 106 -Tbp1 and SEQ ID NO. 107 - Tbp2) from the non-typable *H. influenzae* strain SB33."

Replace the paragraph beginning at page 13, line 15, with the following rewritten paragraph:

"Figures 8A to 8G show[s] the nucleotide sequence of the Tbp2 gene (SEQ ID NO: 108) and the deduced amino acid sequence (SEQ ID NO: 109 - Tbp2) from non-typable strain *H. influenzae* strain SB12."

Replace the paragraph beginning at page 13, line 19, with the following rewritten paragraph:

"Figures 9A to 9G show[s] the nucleotide sequence of the Tbp2 gene (SEQ ID NO: 110) and the deduced amino acid sequence (SEQ ID NO: 111 - Tbp2) from non-typable strain *H. influenzae* strain SB29."

Replace the paragraph beginning at page 13, line 23, with the following rewritten paragraph:

"Figures 10A to 10G show[s] the nucleotide sequence of the Tbp2 gene (SEQ ID NO: 112) and the deduced amino acid sequence (SEQ ID NO: 113 - Tbp2) from non-typable strain *H. influenzae* strain SB30."

Replace the paragraph beginning at page 13, line 27, with the following rewritten paragraph:

"Figures 11A to 11G show[s] the nucleotide sequence of the Tbp2 gene (SEQ ID NO: 114) and the deduced amino acid sequence (SEQ ID NO: 115 - Tbp2) from non-typable strain *H. influenzae* strain SB32."

Replace the paragraph beginning at page 14, line 14, with the following rewritten paragraph:

"Figures 14A to 14C show[s] a comparison of the amino acid sequences of Tbp1 from *H. influenzae* strains Eagan, DL63, PAK 12085 and SB33 (SEQ ID NOS: 7, 5, 11 and 106), *N. meningitidis* strains B16B6 and M982 (SEQ ID NOS: 94 and 95), and *N. gonorrhoeae* strain FA19 (SEQ ID NO: 96)."

Replace the paragraph beginning at page 14, line 19, with the following rewritten paragraph:

"Figures 15A to 15D show[s] a comparison of the amino acid sequence of Tbp2 from *H. influenzae* strains Eagan, DL63, PAK 12085, SB12, SB29, SB30 and SB32 (SEQ ID NOS: 8, 6, 12, 109, 110, 112, 114), *N. meningitidis* strains B16B6 and M982 (SEQ ID NOS: 97 and 98), *N. gonorrhoeae* strain FA19, and *Actinobacillus pleuropneumoniae* strains AP205 and AP37 (SEQ ID NOS: 99 and 100)."

Replace the paragraph beginning at page 14, line 26, with the following rewritten paragraph:

"Figures 16A' and 16A" show[s] the predicted secondary structure of *H. influenzae* Tbp1 protein and Figures 16B' and 16B" show[s] the predicted secondary structure of *H. influenzae* Tbp2 protein."

Replace the paragraph beginning at page 15, line 3, with the following rewritten paragraph:

"Figures 20A and 20B show[s] the sequence of oligonucleotide pairs A (SEQ ID NOS: 86, 87), B (SEQ ID NOS: 88, 89), C (SEQ ID NOS: 90, 91) and D (SEQ ID NOS: 92, 93) for constructing Tbp1 and Tbp2 expression plasmids.

Replace the paragraph beginning at page 17, line 11, with the following rewritten paragraph:

"Figures 31A and 31B illustrate[s] a number of truncated analogues of transferrin receptor protein Tbp2 of the Eagan strain. On the Figure, there are identified a number of clones which contain the nucleic acid molecules encoding the respective truncated analogs (The encoding nucleic molecule for the Tbp2 protein is shown in Figure 4). The specific clones and the SEQ ID nos. for the encoded truncated Tbp2 analogs are contained in Table 8."

Replace the paragraph beginning at page 17, line 13, with the following rewritten paragraph:

"Figures 32A and 32B show[s] the binding of truncated Tbp2 proteins to transferrin."

Replace the paragraph beginning at page 29, line 34, with the following rewritten paragraph:

"In further embodiments, there is provided a number of truncated analogues at transferrin receptor protein Tbp2 as shown in Table 8 and Figure [Fiure] 31 below, and nucleic acid molecules encoding the same. Some of such truncated

analogues are highly expressed in recombinant expression systems (such as *E. coli*) and represent appropriate antisera and immunogens in diagnostic and vaccination embodiments of the invention.

Replace the paragraph beginning at page 44, line 6, with the following rewritten paragraph:

"Certain plasmids that contain at least a portion coding for a transferrin receptor from strains of *Haemophilus influenzae* that are described and referred to herein have been deposited with the American Type Culture Collection (ATCC) located at 10801 University Boulevard, Manassas, VA 20110-2209, USA [Rockville, Maryland USA] pursuant to the Budapest Treaty and prior to the filing of this application. Samples of the deposited plasmids will become available to the public upon grant of a patent based upon this United States patent application. The invention described and claimed herein is not to be limited in scope by plasmids deposited, since the deposited embodiment is intended only as an illustration of the invention. Any equivalent or similar plasmids that encode similar or equivalent antigens as described in this application are within the scope of the invention."

Replace the following table on page 82:

TABLE 8 - Truncated Eagan rTbp2 clones

Clone	SEQ ID NO:	%Tbp2	Expression	Tf binding
		100%	+	+
DS-1461-8-1	148	98%	ND	ND
DS-1466-1-1	149	83%	+	+
DS-1466-1-14	150	80%	+	+
DS-1466-2-6	151	69%	+	+
DS-1466-3-4	152	63%	+	+
DS-1466-3-1	153	62%	+	+
DS-1644-7-9	154	61%	+	+

DS-1466-1-4	155	60%	+	+
DS-1457-3-1	156	54%	++	-
DS-1466-4-1	157	45%	++	-
DS-1466-5-1	158	38%	++	-
DS-1466-4-3	159	16%	ND	ND
DS-1466-1-18	160	10%	ND	ND